

WHAT IS CLAIMED IS:

1. A digital processor responsive to a microinstruction to perform an operation, the digital processor comprising,
 - a memory for storing data associated with the operation to be performed;
 - a finite state machine (FSM) for performing a function in association with the operation; and
 - control circuitry for providing data to the register and for starting execution of the FSM in response to the microinstruction.
- The digital processor of claim 1, further comprising
loop control circuitry for repetitively accessing the data stored in the memory.
- The digital processor of claim 1, wherein the control circuitry includes
ID detection circuitry for determining that at least a portion of a microinstruction is to be implemented by the FSM.
- The digital processor of claim 1, further comprising
a plurality of FSMs;
wherein the control circuitry includes
FSM execution circuitry to selectively invoke operation of one or more of the plurality of FSMs.
- The digital processor of claim 1, further comprising
a configurable FSM;
wherein the control circuitry includes
configuration circuitry to direct the configurable FSM to be configured for a predetermined function associated with the microinstruction.
- The digital processor of claim 1, wherein the memory includes a register.
- The digital processor of claim 1, wherein the memory includes a microstore.
- The digital processor of claim 1, wherein the memory includes a cache.
- A computer processor for executing a microinstruction, the computer processor comprising
 - a finite state machine (FSM);
 - an iterative register; and
 - control circuitry for controlling the FSM and the iterative register to implement at least a portion of the microinstruction.

- 1 10. The computer processor of claim 9, wherein the FSM and iterative
2 register are operated concurrently.
- 1 11. A method for executing a microinstruction, the method comprising
2 using both a finite state machine and an iterative register to implement at least
3 a portion of a function indicated by the microinstruction.

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